The greatest monthly rainfall was 1.94 inches at Dunsmuir. One hundred and thirty-eight stations reported no rain during the month.

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Percentage of possible.	Stations.	Hours.	Percentage of possible.
Eureka	132	29	Sacramento	418	92
Fresno	410	92	San Diego	292	67
Los Angeles	312	71	San Francisco	273	61
Mount Tamalpais	385	86	San Jose	350	78
Red Bluff	414	91	San Luis Obispo	295	67

NOTES ON THE RIVERS OF THE SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING JULY, 1912.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—There was a steady fall in all streams throughout the Sacramento drainage basin. In the Sacramento River the ranges between the stages on the first and those on the last dates were from 1 foot in the upper reaches to as much as 3 feet at the mouth of the American.

At Colusa the stage of the Sacramento equaled the lowest previous average for the month, and at Knights Landing and the city of Sacramento it averaged lower than ever before recorded during July.

In the headwaters of the Feather-Yuba and American River Basins streams were much below the usual July stages. The Feather at Oroville averaged slightly above the previous July low water, but the Yuba at Marysville was 0.4 of a foot lower than for any corresponding month since records at that point have been kept. At Folsom on the American the river lacked 0.4 of a foot of being as low as the previous low-water average of July.

While numerous shoals and sand bars have formed in the Sacramento above the mouth of the American, boats are still running as far as Chico Landing.

Lower San Joaquin watershed.—The rivers of this watershed were much below the usual July stages, especially during the first half of the month when usually snow water increases the run-off.

At San Joaquin bridge the San Joaquin River was 7 feet below the July normal stage, and the average was 14.3 feet below that of July, 1911. The Mokelumne and Cosumnes Rivers were the lowest of any July of which there is a record.

FROST FIGHTING AT POMONA.

Mr. J. E. Adamson, of Pomona, states in the Pacific Rural Press for July, 1912, as follows:

The people in and about Pomona district have been prompt to recognize the value not only of orchard heating, but of the greater efficiency to be obtained from concerted work. They have formed an association for the express purpose of furthering the interest in frost prevention and the control of the fight when the actual battle comes.

The association centralizes its power in a committee, and this again in a general manager, who will divide the valley into a number of districts, each of which will have a number, after the manner of fire districts in a city. In each of these districts will be located instruments for the recording of temperature and humidity, and also wind direction and velocity. A night watchman will make the rounds of these stations on dangerous nights, reporting to headquarters once an hour or oftener if the conditions change suddenly. These reports coming in from all over the valley will be tabulated and will then become an accurate guide to the manager in determining the advance of the cold wave and the necessary time and place to begin firing. Alarms will be sent out at the proper time and the growers in the danger zone will be at work all over the cold area at once. It is hoped by this uniform control of the work to secure uniform results and save the individual grower the trouble of keeping a close watch before the actual danger line is reached. Other districts are rapidly falling into line and it would seem that the grower of citrus fruit has made up his mind that no longer will there be damaged fruit sent to the consumer if preparation will prevent it.

VARIATION OF RAINFALL WITH ALTITUDE.

By A. G. MCADIE.

In the Monthly Weather Review for September, 1911, page 1422, there was published a discussion of the rainfall records of four stations near Fresno for the seasons 1909–10 and 1910–11. The data were supplied through the courtesy of Mr. E. J. Crawford, assistant general superintendent of the San Joaquin Light & Power Corporation. The stations are:

		Elevation.
Fresno	feet..	230
San Joaquin power house	do....	1,013
Reservoir No. 1	do....	2,441
Colorado Valley Dam	do....	3,500

By combining the records the following annual amounts were determined for the various elevations:

		Rainfall.
230 feet	inches..	11.40
1,013 feet	do....	31.53
2,441 feet	do....	31.63
3,500 feet	do....	50.16

or a gradient of 1.18 inches per 100 feet.

Attention was called to an apparent irregularity in the rate of increase between the second and third stations.

Mr. Crawford has offered the following reasonable explanation. The 1,000-foot elevation represents a locality on the main San Joaquin River so situated that the 2,000-foot level has to be passed over before the 1,000-foot level is reached. In other words, the power house, itself at an elevation of a little over 1,000 feet, is surrounded by hills exceeding 2,000 feet. The amount caught at the lower level is practically the same as that of the higher elevation.

Mr. Crawford furnishes the following additional data for the season of 1911–12:

Months.	Fresno.	San Joaquin power house.	Reservoir No. 1.	Colorado Valley Dam.
September	0.01	0.06	0.08	0.30
October	.09	.07	.08	.25
November	.17	1.45	1.27	2.62
December	1.06	1.18	1.78	3.49
January	.72	.64	2.18	2.90
February	.00	.08	.09	.34
March	3.02	6.02	5.66	9.61
April	1.86	3.55	3.67	7.00
May	.41	.77	.75	1.58
June	.00	.00	.00	.11
July				
August				
Total	7.34	13.82	15.56	28.20

For the three seasons, 1909–10, 1910–11, and 1911–12, we find that the seasonal rainfalls average:

		Rainfall.
230 feet	inches..	10.05
1,013 feet	do....	25.63
2,441 feet	do....	26.27
3,500 feet	do....	42.84

Neglecting the second station, for the reason above stated, we find that the average increase up to 3,500 feet is at the rate of 1 inch per 100 feet; the average increase up to 2,441 feet is at the rate of 0.73 inch per 100 feet; while the average rate of increase in the level between 2,441 feet and 3,500 feet is at the rate of 1.45 inches.